COMFORT audio

User Manual

Conference Microphone
DC-20

COMFORT audio

User Manual

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Introduction to the Comfort Digisystem

Thank you for choosing Comfort Digisystem.
The products are easy to use, whether you use a hearing aid or not.

Before using the product, please read this User Manual carefully.

Using the Conference Microphone DC-20 combined transmitter and receiver, the signal is transferred digitally, resulting in an excellent, interference-free sound.

Comfort Digisystem is fitted with 🔲 SecureStream Technology – a type of digital technology allowing eavesdrop-secure radio transfer in real time.
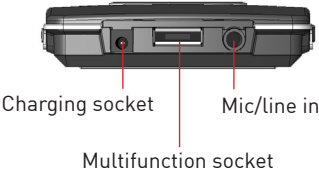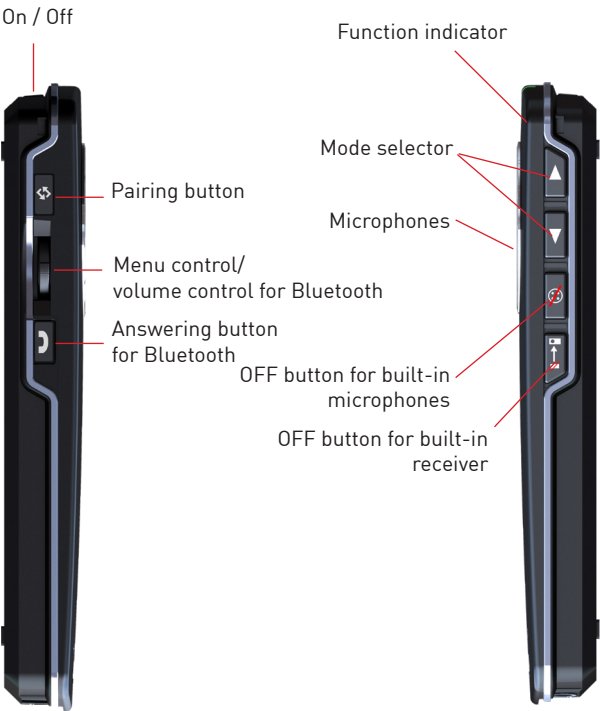
Presenting the Conference Microphone DC-20

The Conference Microphone DC-20 is an advanced microphone offering the option of setting the size and shape of the sound registering area. It can be wirelessly connected to two telephones via Bluetooth (mobile/portable, etc.) as well as to a landline using the original Telelink accessories. The DC-20 is also equipped with a built-in receiver which allows you to build a system of several cordless microphones from the Digisystem series.

PSE (Perceptual Speech Enhancement)

The Conference Microphone DC-20 is equipped with high-power sound processing that is used in the two omni modes (omnidirectional). The method is based on emphasising meaningful parts of speech. Please visit our website for more information on how this technology works.

Functions of the Conference Microphone DC-20

On / Off

Function indicator

Pairing button

Mode selector

Microphones

Menu control/
volume control for Bluetooth

Answering button
for Bluetooth

OFF button for built-in
microphones

OFF button for built-in
receiver

Charging socket

Mic/line in

Multifunction socket

Functions - Charging stand

Multifunction
socket

USB-socket
(for service)

Mic in

Charging
socket

Line in

INPUT 5V ⎓ 650 mA
ONLY USE LISTED CHARGER

Functions - Telelink

Multifunction socket

Standby indicator (green)

Telephone mode indicator (blue)

Standby/telephone button

USB-socket (for service)

Mic/Line in

Charging socket

Telelink connection

Function selector for Mic/Line input
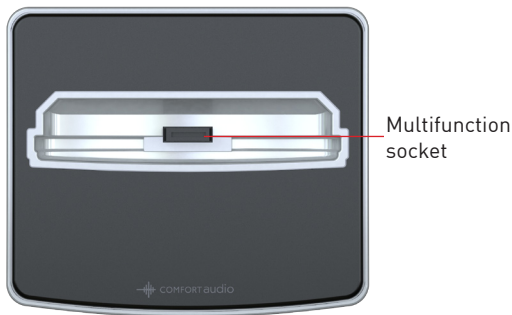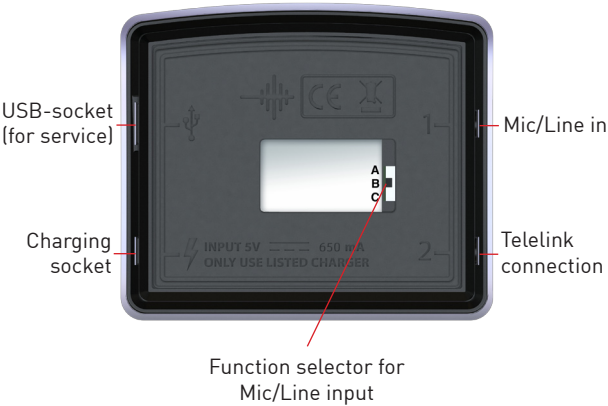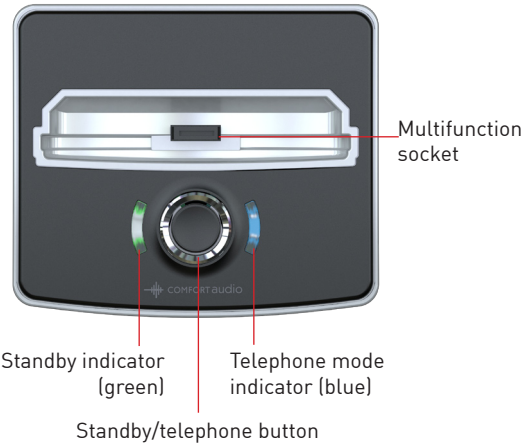
Getting Started

Charging

The Conference Microphone DC-20 is chargeable. Charge the DC-20 at least five hours before you use it for the first time. An empty battery is fully charged within five hours.

During charging, the function indicator shows red and a lightning bolt appears through the battery symbol in the display. Once the battery symbol is filled with green columns, the unit is fully charged and switches to automatic float charging.

A fully charged battery has an operating time of up to eight hours. Battery lifetime is up to five years. You must not change the battery yourself; please contact your point of purchase.
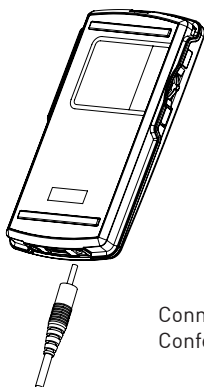
Connecting a charger to the Conference Microphone DC-20

Please note:
Only use the charger
supplied by Comfort Audio AB.

First Time Use

Switch on the transmitter by pressing the On/Off button for around two seconds.

The Conference Microphone DC-20 always starts in Omni Mode Wide as default. The position is easily changed using the mode selector on the long side of the unit.

The various sound reception positions are located in the following order:

- Zoom

- Omni – Narrow

- Omni – Wide
(default position)

- Music

OFF button for built-in microphones 🔇
This button can be used to switch off the built-in micro-phones. An indicator is shown on the display.

OFF button for built-in receiver 📵
Used to switch off the built-in receiver. See the *Built-in receiver* section. An indicator is shown on the display.
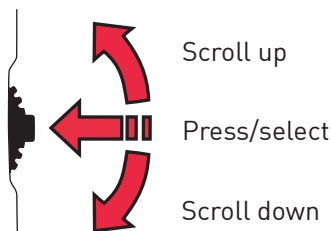

Please note: The receiver level on the built-in receiver is set to 0 (zero) on delivery. See the *Built-in receiver* section.

Other functions are explained later in this manual.

Menu

Menu control
Three different selections can be made:

Scroll up

Press/select

Scroll down

To access the menu, press the menu control:

Back
Communication
- ↳ *Channel*
- ↳ *Pairing*
- ↳ *Bluetooth*

Sound
- ↳ *Treble and Bass*
- ↳ *Equalizer*
- ↳ *Advanced settings*

Input
- ↳ *Mic/Line in*
- ↳ *Charger unit*
- ↳ *Telelink*
- ↳ *Receiver gain*

Settings
- ↳ *Auto power off*
- ↳ *Language*
- ↳ *Key lock*
- ↳ *Name*
- ↳ *Factory reset*

Activate key lock
About

Back (relates to both the main menu and submenus)
Here you can choose to return to the menu and to the main display.

Communication
Channel
To use the receiver and the transmitter together, they must be set to the same channel. The transmitter and receiver are set to the default channel by the manufacturer. (This does not apply to units with both sender and receiver. In this case the transmitter/receiver are adjusted as described in chapter *Radio range and Channels*). To change channel, select **Channel** in the menu. Choose transmitter or receiver (this applies only to units with both transmitter and receiver). Select a new channel using the menu control.

Channel information is also given when the units are paired. Channels 1, 2 and 3 are free channels in most European countries that do not require a licence. Under **Extended** more channels can be selected, but these usually require a licence – see the section *Radio Range and Channels*.

FFC (Free Frequency Check) indicates in green the suitable frequencies for the specific environment. Please note! Switch off your other Digisystem transmitters for correct result

FFC dB indicates the noise level in dB for each channel. The higher the (-)value, the lower the risk of interference.

When selecting a channel for units with a built-in transmitter and receiver, see the *Built-in receiver* section.

Pairing
To use a receiver and transmitter together, they must be

paired. All transmitters and receivers are default paired at the factory and will work together. To prevent eavesdropping, a new code key must be generated and transmitted between the units by pairing.

If the following error message shows: **Illegal channel! Please choose another channel**, please see the *Built-in receiver* section.

Transmitting/receiving of pairing information along with a new code can be performed from any Comfort Digisystem unit with a display. To pair units without a display, see sections *Pairing (via pairing button)* and *Pairing (Connector DT-10)* for more information. Pairing information or a new code key can be received by several activated units.

Comfort Digisystem units with both transmitters and receivers built-in can be paired separately. When opening the pairing menu, choose the concerning unit (transmitter/receiver). In units with both transmitters and receivers, the pairing button controls the transmitter. The transmitter and receiver are paired separately in these units. The code key is always the same for the transmitter and the receiver when these are built-in in the same unit. The easiest way to get the same code key in the whole Digisystem is to generate a new code key from the combined unit; in that way the built-in receiver gets the same code as the rest of the system.

Pairing (via menu)
Select **Receive info** on one unit. **Ready to receive pairing info** is shown in the display. Select **New code** on the other unit; select **Yes**. **Generate new code and send info?** is shown in the display. Select **Yes** (Now both the channel and the coding information have been sent, and sound transfer is eavesdrop-secure). To pair another unit into your coded system, select **Send info** instead on one of

your paired units.

Pairing (via pairing button) 🔄

(The only way of pairing units without a display, with the pairing button)

You can activate the Pairing function via the pairing button. One brief press of the button opens the *Pairing* menu. Two brief presses activate the **Send info** function. One long press activates the **Receive info** function.

Pairing (Connector DT-10)

The connector cannot send information, only receive it. To activate the position **Receive info**, the connector must be in operation (position I or II) and connected to an operating hearing aid. The selector is then quickly moved to position 0 and back to the operating position (I or II). The connector can now receive pairing info. If no info is received by the connector, after a short time this returns automatically to the previous setting.

Bluetooth

Here you can activate Bluetooth to be able to pair the Conference Microphone DC-20 with a telephone or mobile. When **Tel Only** is selected, the transmitter is active only when the telephone call is connected via Bluetooth or Telelink.

Using **Mix level** you can adjust the volume of your own voice. This function can only be adjusted during an ongoing telephone call. This function can also be used to allow communication with the surrounding environment while making a telephone call.

Pair Mobile (code 1234) is used to pair a mobile with the DC-20.

Pair Phone (code 0000) is used to pair a cordless (DECT) or

mobile telephone with the DC-20.

Select **Clear settings** to delete all information on paired units. Please note: After this the Bluetooth units have to be paired again (so that Bluetooth can work).

When using land line/cordless and mobile phones at the same time: On some land line/cordless telephones the Bluetooth connection is not active if no call is being made. This can cause a time delay before Bluetooth is connected for an incoming call. In certain cases the time delay can be avoided by pairing a cordless telephone in the "Pair Mobile" profile, but this can cause problems with initiating outgoing calls from the land line/cordless telephone. For more information, see "More Functions".

Sound
Treble and Bass
Treble and Bass control that allows simple adjustment of the unit's equalizer. Press the answering button to return to the menu.

Equalizer
You can obtain fine tuning of the sound characteristics by changing the level at various frequencies, from low to high frequencies. The level can be increased or reduced at the mid-range frequencies 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz and 8 kHz. Press the answering button to return to the menu.

Advanced settings
Here you can adjust PSE compensation in the modes Omni – Wide and Omni – Narrow. Settings are saved separately for each mode.

The effect of increasing this value is that the volume will increase when the overall sound level in the environment raises. If the surrounding sound is too high, you can increase PSE compensation and the overall sound level is raised.

For someone who feels that the volume gets too loud in noisy environments, PSE compensation can be reduced. On delivery, Omni – Wide is set to +2 and Omni – Narrow to +6.

Input
Mic/Line in
This is where the function for the mic/line in socket is selected:
- Line in (for TV or computer etc.)
- Microphone in (for an external microphone, e.g. a clip-on microphone)
- Headphones out (for testing the unit with headphones)
Here you can also adjust the level for Line in, Microphone in and headphones:
- Line level
- Mic level
- Headphones

When connecting a signal source to Line in (e.g. a TV), Line in mix is selected to also receive surrounding sound through the Conference Microphone DC-20.

Charging stand
Here you can adjust the level for Line in and Microphone in. Line in mix can also be selected for use with charging stand.

It is not possible to use both sockets at the same time. In this case an error-message is shown: **Disconnect from Mic/Line**.

Telelink
If original Telelink accessories have been connected, the following functions can be adjusted:
- Tele-in level (adjusts the incoming telephone sound level for landline telephony; can also be adjusted using

the menu control when a call is in progress).
- Tele-out level (adjusts the outgoing sound level for landline telephony. This control has no function when an external microphone is used).
- Mic/Line in (adjusts the level of sound on the Mic/Line-in input when the unit is in standby mode (not telephony, green indicator on Telelink). The selection of Mic or Line is done using the A-B-C switch on the underside of the Telelink. For more information, see *Telelink* under *More functions*.

In **Mic mode**, you may select the desired preset sound registering mode for landline telephone calls (does not apply when an external microphone is used for Telelink).

When **Tele Only** is selected, the transmitter is active only when the telephone call is connected via Bluetooth or Telelink.

Receiver level
Here the incoming sound level is adjusted via the built-in SST receiver. See *Built-in receiver* for more information.

Settings
Auto power off
This is activated to shut down the unit automatically during charging.

Language
Here you can select the menu language.

Key lock
When this function is activated, all buttons are locked automatically as soon as the display fades out. It can be quickly activated; see the section *Activate key lock*.

Name
Here the text to be displayed is selected. Choose symbols

with the menu control. Select ✓ to save and x to close without saving. To move the cursor during editing, use the symbols > and <.

Factory reset
Resets the unit to the factory settings. Also deletes all pairing information (SST and Bluetooth). To prevent eavesdropping a new code key must be generated.

Activate key lock
Here you can activate the key lock directly when the menu control has been pressed. Or you can press the menu control, followed by arrow up (mode selector) on the long side of the unit.

About
Here you find software information.

More Functions

Function indicator (LED)
The function indicator shows the unit's mode settings.
Music position = Flashes green once every three seconds
Omni position – Wide = Flashes green twice every three seconds
Omni position – Narrow = Flashes green three times every three seconds
Zoom position = Flashes green four times every three seconds. When the battery level gets low, the indicator flashes red. (Check the battery status on the display)

During charging the indicator shows red. When the unit is fully charged, the green indicator is lit. This function is disengaged when the DC-20 is switched on and placed in the Telelink.
Once the unit has been set to receive pairing information, the indicator flashes green quickly.

When receiving pairing information, the indicator shows green for three seconds.

When sending pairing information, the indicator flashes red five times.

When the pairing mode for Bluetooth has been activated, the indicator shows blue.

When a Bluetooth telephone has been successfully connected, the indicator flashes blue five times.

During an ongoing telephone call, the indicator flashes blue every second second.

When **Reset BT** is selected, the indicator flashes blue ten times.

Bluetooth™

The Conference Microphone DC-20 can be connected to two Bluetooth telephones at the same time. During a telephone call the DC-20 is used as a hands-free that receives the sound and transfers it on to the call partner. The sound from the call partner's telephone is sent from the DC-20 to a paired Digisystem receiver.

When Bluetooth is activated in the menu, the Bluetooth symbol is shown in the display. If only one telephone has been paired (and connected) with the unit, the figure 1 appears at the Bluetooth symbol in the display. If two telephones have been paired (and connected) the figure 2 appears instead.

Some DECT telephones are only connected during in-coming or outgoing calls. In such cases, the unit can also display a 1, even if a mobile and a DECT telephone have been paired with the unit.

The DC-20 supports both headset and handsfree profiles for Bluetooth. The profile is chosen automatically during pairing.

Application - Bluetooth™

Answer an incoming call:
Press the answering button briefly (around 1/2 second), or answer with the telephone.

End a call:
Press the answering button briefly (around 1/2 second), or end the call with the telephone.

Make a call:
When you make a call, the sound is automatically trans-ferred via the relevant Bluetooth connection (depending on the telephone's settings) to the DC-20.

One of the Bluetooth connections (telephone, code 0000) has priority. This means that the voice dialling and re-dialling functions only work in this telephone if two telephones are connected.
- Voice dialling is activated by briefly pressing (approx. 1/2 second) the answering button.
- Re-dialling is activated by pressing the answering button approx. two seconds.

Microphone position:
During a telephone call, it is possible to select between the modes Omni – Wide, Omni – Narrow and Zoom, using the mode selectors on the long side of the unit.

Pairing with telephones:
To pair the unit with telephones, see the section *Communication*.

Volume control:
During a telephone call, the volume can be adjusted by using the menu control on the long side of the unit (this adjusts the telephone's volume control). The display shows the current volume.

Some mobiles require further adjustments to obtain sufficiently loud sound. For example increase the level manually in the media player's equalizer (SonyEricsson).

Charging stand
The Conference Microphone DC-20 is delivered with a charging stand. Apart from charging the microphone, the stand can be connected to external sound sources. There are 2 sockets at the right hand short side of the charging stand, marked 1 and 2 (look underneath).

At socket 1, an external microphone can be connected. At socket 2, a stronger signal source, such as TV, MP3, radio etc. can be connected. It is not possible to use both

sockets at the same time. In that case, an error-message is shown: **Disconnect from Mic/Line**. The level of these signal sources can then be adjusted under **Connection – Charging stand**.
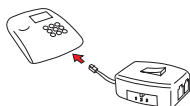
Telelink
Telelink is an original accessory from Comfort Audio which is suitable for the Conference Microphone DC-20. This original accessory is used to enable the connection of landline telephone calls (via a cable) to the Conference Microphone DC-20. Telelink is connected via a switchbox to a stationary telephone. To allow this, the contact on the handset cable must be of the "modular type".
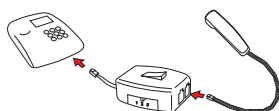
Installation (see also Telelink Quickstart)
Start by disconnecting the handset cable from the telephone.
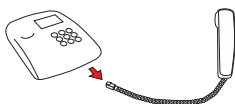
Then connect the modular cable provided between the telephone and switch box in the socket marked ☎ (see underside of switchbox).
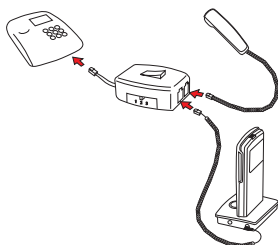

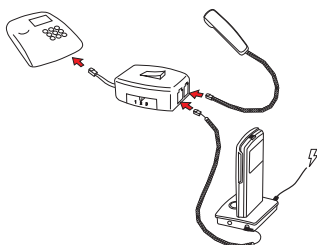Connect the handset to the socket marked 📞 (see underside of switch box).

Connect the remaining cable (modular 3.5mm contact)

between the socket marked ☏ (see underside of switch box) and socket no.2 on the Telelink (see underside of Telelink). Place the Comfort Conference DC-20 into the Telelink.

Connect the charger to the Telelink.

Your telephone can still be used exactly as before when the switch on the switch box is set to position ☎. To use the Telelink for telephone calls, the switch should instead be set to position ☏.

An external microphone can be connected to the socket marked 1 on the underside of the Telelink.

Different telephones are connected in different ways. Therefore, the 1-2-3 switch on one of the long sides of the switch box must be in the correct position. You will need to test this by listening. Activate your Digisystem units (DC-20 and receiver) so you can hear the background noise when the Telelink is in standby mode. Use the

Standby/Telephone button so the green standby indicator is lit. Then, press the standby/telephone button so that the Telelink is in telephone mode (blue indicator).

Lift the handset and check whether you can hear the dialling tone. If not, use the 1-2-3 switch to find the correct setting. If the sound level is too low or too high, go to the Conference Microphone DC-20 menu under **Connections - Telelink** and increase or decrease **Tele-in level** accordingly.

Make a call to ensure the recipient can hear you. If not, adjust the 1-2-3 switch and **Tele-out level** under **Connections - Telelink** until your voice can be clearly heard. This is done while the call is in progress.

When an external microphone is being used with the Telelink (activated by selecting position A on the underside of the Telelink), the **Tele-out level** does not affect the sound. Instead, position the external microphone for optimal sound registration.

The A-B-C switch on the underside of the Telelink is used to select the function on the Mic/Line input (marked no.1).
A: Mic-out when telephoning. Used when using the external microphone in telephone mode.
B: Mic-in standby. Used to register sound using an external microphone in standby mode.
C: Line-in standby. Used to listen to another sound source in standby mode (e.g. Dictaphone, computer, MP3, etc.).

Standby/telephone button
This button alternates between the Telelink's functions. The functions are shown using an indicator for standby mode (green) and for telephone mode (blue). In standby mode, the sound registering position can be selected us-

ing the program selector on the long side of the DC-20. It is also possible to switch off the microphones using 🚫 when the DC-20 is in standby mode (green indicator). The microphones are reactivated automatically when the Telelink is put in telephone mode (blue indicator).

Function indicator
The indicator does not display the charging status when the unit is being used.
This makes it is possible to see which sound registering position is active in standby or telephone mode. In other words, these can be selected separately for standby and telephone mode. Bluetooth telephony works as normal when the unit is used with a Telelink, but the call in progress always takes priority and must be ended before a new one can be started.

Volume control for landline telephony
During calls using Telelink, the volume can be raised or lowered using the menu controls.

Built-in receiver
NB! The receiver on the Conference Microphone DC-20 is completely switched off on delivery. The receiver level under Connections in the menu is set to 0 (zero). The receiver must be adjusted to a suitable level in order to hear what is being said.

The Conference Microphone DC-20 is equipped with a built-in SST receiver. This can receive in the frequency range specified in the *Radio range and channels* section. If an attempt is made to select a different channel through pairing, the error message: **Incorrect channel. Please select again** is shown.

The receiver is paired in the same way as other Digisystem units. See the *Pairing* section.

The sound received can be adjusted to precisely the right

level under **Connections - Receiver level**.

The *OFF switch for built-in receiver* button on the long side of the unit enables you to switch the built-in receiver on and off. This allows to select the sound source in special listening situations.

It is not possible to select a receiver or transmitter frequency with an exact difference of 26 MHz between them. If an attempt is made to input this setting, the message "Channel interference! Please choose another channel" is shown on the display. Select a different receiver frequency. If an attempt is made to send channel information (which causes this situation) to the unit's receiver or transmitter, the message: **Channel interference! Please choose another channel** is shown on the display.

As the built-in receiver is not being used, the receiver level should be set to 0 (zero) in the Connections menu, or switched off using ⇥ . This is to prevent undesirable interference which may be caused by other electronic equipment.

Channel planning for optimal radio performance
When both the transmitter and receiver are being used on the DC-20, the frequency difference between the transmitted and received frequency should be at least 15 MHz for optimal function.

The frequency difference between the transmitted and received frequency must not be 26.0 MHz exactly. The DC-20 blocks the option to set the frequencies in this way.

If several transmitting frequencies are being used in the same room, the frequency differences between the units should be at least 1 MHz for optimal function.

Radio Range and Channels

The transmitter and receiver have built-in antennas. The radio range between the units is around 30 metres. This may however vary depending on the particular environment you are in. Like all radio systems, Comfort Digisystem communicates on specific channels. If you use two transmitters on the same channel or a neighbouring one, there may be interference. Other electronic equipment can also interfere with radio transmissions.

Transmitter

In most European countries, channels 1-3 (863.250 – 864.750 MHz) may be used for hearing products. However, you should always check with the frequency assignment authority in your own country which channels are free and which require a licence.

In addition to channels 1-3, under **Extended** there are several channels in bands A-F, which require a licence in most European countries:

B   854 - 863 MHz
E   852 - 854 MHz
F   865 - 872 MHz

Receiver

The built-in receiver can be used with the following channels:

E   824 - 849 MHz (Model nr DG01101)

Attached Accessories

Necklace
Two different lenghts.

Clip-on microphone

Charger

Charging stand

Split cable for charging

Audio cables

Other original Accessories

Car charger
The car charger is designed for cars with a 12 volt (-) earthed electrical system. The charger has short-circuit and automatic overload protection. Disconnect the charger from the socket after use.

Boom microphone
Headset microphone.

Earworn microphone
A microphone that is attached around the ear.

Telelink
Accessories for landline telephony.

For other accessories, please visit our website,
www.comfortaudio.com

Trouble Shooting

The transmitter and receiver do not start
Charge the transmitter and receiver. Remember to press the On/Off button down for 2 seconds to switch the unit on. Check that the charger is connected to the plug socket.

Poor speech intelligibility
The distance between the transmitter and the receiver may be too long. The range is around 30 metres. The distance between the microphone and the person who is talking may also be too long; move the microphone nearer to the person talking. Try to change channel/environment.

Poor range and interference
In some environments involving, e.g., concrete, iron or sheet metal structures, the range may be reduced. There may also be equipment nearby causing interference. Change channel.

No sound
Check that the transmitter and receiver are set to the same channel.

Loud hissing noise (no sound transfer)
Check that the units are paired.

The unit will not start during charging
Disconnect the charger. Check the selection **Auto power off** under **Charging** in the menu.

"Incorrect channel. Please select again", or "Channel interference! Please select again" is shown on the display
See the *Built-in receiver* section.

Unit functions but considerable background noise is heard
Reduce receiver level to 0 (zero) if no paired transmitter is being used for the built-in receiver.

Service and Warranty

Comfort Audio AB provides a comprehensive warranty for two years as from the date of delivery. This covers all defects of manufacture and materials. Defects caused by careless handling or intervention inside the product or its accessories are not covered by the warranty.

Under normal use, battery lifetime is up to five years. Contact your point of purchase once it is time to change the battery.

You are always welcome to contact us at Comfort Audio if you have any questions.

Technical Data

Type of transmitter/receiver:	SST - SecureStream Technology
Range:	Approx. 30 m
Dimensions:	115x62x14 mm
Weight:	90 g
Frequency range:	Transmitter: 852 - 872 MHz
	Receiver DG01101: 824 - 849 MHz
Antennas:	Built-in
Operating time:	Up to eight hours
Battery:	Chargeable Li-Polymer
Charging time:	Approx. five hours
Microphones:	Combination of four built-in microphones, directional and omnidirectional
Connections:	Mic/Line in, socket for testing with headphones, socket for charging stand and Telelink

Important Safety Instructions -
Read these before using your product

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not use near any heat sources such as radiators heat registers stoves, or other apparatus (including amplifiers) that produce heat.
8) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet consult an electrician for replacement of the obsolete outlet. (Only when using polarized plug)
9) Protect the power cord from being walked on or pinched particularly at plugs convenience receptacles. and the point where they exit from the apparatus.
10) Only use attachments/accessories specified by Comfort Audio AB.
11) Unplug this apparatus during lightning storms or when unused for long periods of time.
12) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way such as power-supply cord or plug is damaged liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture does not operate normally or has been dropped.
13) Start listening at a low volume.
14) Too high a volume can seriously damage your

hearing.
15) Don't disassemble the product.
16) Should the product break open because of damage, service should only be done by qualified service personnel.
17) Never use a transmitter or receiver set to a non-permitted frequency. Check with the frequency authority in the country where the equipment is to be used.
18) The product contains sensitive electronic equipment and must be handled carefully.
19) Never charge product in closed, unaired spaces such as handbags, cases or other closed storage bags.
20) Only use batteries and power supply specified by Comfort Audio AB.
21) You must not change the battery yourself; please contact your point of purchase.
22) CAUTION! Danger of explosion if battery is incorrectly replaced.
23) The product shall not be exposed to excessive heat such as sunshine, fire or the like.

Subject to change

COMFORT audio

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